

## EXECUTIVE SUMMARY

ES1 Jefferson Proving Ground (JPG) is situated on 55,264 acres in Jefferson, Ripley, and Jennings Counties, Indiana. JPG was used as a U.S. Army Proving Ground between 1941 and 1995. JPG is physically divided into two sections which are north and south of the old firing line, by a fence along Firing Line Road. The northern portion, constituting approximately 51,000 acres, is known as the Northern Firing Range Area. This area contains unexploded ordnance (UXO) and the Army plans to retain ownership although other government agencies have expressed interest in leasing the area. The southern portion, constituting approximately 4,314 acres, is known as the Cantonment Area. The Cantonment Area is considered to be economically valuable in terms of reuse. The 323-acre wooded site, which this Engineering Evaluation / Cost Analysis (EE/CA) project addresses, is located in the south-western portion of the Cantonment Area. UXO clearance activities that have taken place in other parcels of the Cantonment Area have recovered UXO. As a result, this study has been conducted to determine if UXO also exists in the study area.

ES2 The Base Closure and Realignment Act of 1988 (Public Law 100-526, 102 Stat. 2623) and the Defense Base Closure and Realignment Act of 1990 (Public Law 101-510, 104 Stat. 1808) provide for a recurring, systematic review and evaluation of all installations operated by the U.S. Armed Forces. JPG was identified for closure in 1989 and its mission was reassigned to Yuma Proving Ground in Arizona following closure of JPG on September 30, 1995. Disposal of property under the Base Realignment and Closure (BRAC) process includes an extensive screening process for potential new users.

ES3 This EE/CA project involves a 323-acre wooded site ("site") on the south-western side of the Cantonment Area. This project has been performed by the U.S. Army Corps of Engineers (USACE) under the BRAC program. The purpose of this EE/CA is to determine the most appropriate response action to address the UXO that may be located at the site.

ES4 The field investigation at the 323-acre wooded site was conducted between September 1998 and May 1999 to determine the nature and extent of ordnance and explosives (OE) contamination. For the field investigation, the site was divided into two parcels including a larger parcel approximately 312 acres in size, which is bounded to the north by Woodfill Road and to the

east by Tokyo Road, and a smaller parcel approximately 11 acres in size, which is located just northeast of the intersection of Woodfill and Tokyo Roads. The field investigation was comprised of two separate efforts – the geophysical survey and the intrusive investigation. A geophysical survey to detect ferrous metal objects was conducted at the site between September 7 and September 11, 1998 by GEO-CENTERS, Inc. under direct contract to the U.S. Army Engineering and Support Center, Huntsville (USAESCH). GEO-CENTERS used the Portable Surface Towed Ordnance Locator System (Portable STOLS<sup>2</sup>) during the geophysical survey. The geophysical survey was described as a pseudo-random walk (“pseudo” because the site was surveyed with a series of parallel lines; “random” because the geophysical survey team followed the path of least resistance when traversing the survey lines). Based on the number of lane-miles walked during the survey and the width of the lanes, it was determined that approximately 2.83 acres, or 0.87% of the area of concern, was surveyed. Analysis of the geophysical data indicated that 89 anomalies showed characteristics of UXO and should therefore be intrusively investigated.

ES5 An intrusive investigation of the suspect anomalies was conducted between May 8 and May 13, 1999. USAESCH contracted with Parsons Engineering Science (Parsons ES) to perform the intrusive investigations, while GEO-CENTERS reacquired the 89 anomalies. All 89 anomalies were intrusively investigated. One potentially hazardous OE item was found near the southern end of Tokyo Road, approximately two inches below the surface. The potentially hazardous OE item was blown in place. In addition, one piece of OE-related scrap was found on the surface near Woodfill Road.

ES6 A qualitative assessment addressing the protection of public safety and human environment associated with UXO at the site was performed. This assessment is known as an Impact Analysis. The Impact Analysis was performed on only the 312-acre parcel as no OE items or OE-related scrap was found during the field investigation of the 11-acre parcel. The purpose of the Impact Analysis is to assess the level of risk to public safety, which can then be used to determine the most appropriate response action for the site. The Impact Analysis is a qualitative assessment that evaluates three components: the likelihood of a UXO detonation, the severity of the exposure, and the likelihood of exposure to UXO. Based on the evaluation of these factors, it was concluded that a medium risk is posed by UXO at the 312-acre parcel.

ES7 The goal of this response action evaluation is to determine the most appropriate response alternative to address the threat posed by UXO that potentially remains at the 312-acre parcel to an acceptable level. This goal will be achieved by minimizing the public’s exposure to UXO.

The specific objectives of the response action are to identify the degree and extent of OE contamination, evaluate the effectiveness of various response alternatives, determine the ability to implement the various response alternatives, and determine the cost to implement the various response alternatives. Four alternatives were identified based on the results of the field investigation, OE detection and disposal technology available, and the ability to achieve the response action objectives. The alternatives identified and screened in this EE/CA include:

- ?? Alternative 1 - No DOD Action Indicated (NDAI);
- ?? Alternative 2 - Institutional Controls;
- ?? Alternative 3 - Surface Clearance of OE; and
- ?? Alternative 4 - Surface and Subsurface Clearance of OE to Depth.

ES8 The screening of the above-listed four alternatives was performed to ensure they meet the response action objectives and the minimum requirements for overall effectiveness and implementability. Following this initial screening, Alternatives 2, 3 and 4 were retained for a comparative analysis. During the comparative analysis, the three remaining alternatives were ranked against each other within the categories of effectiveness, implementability and cost.

ES9 Based on this comparative analysis; the recommended response action for the 312-acre parcel is a surface and subsurface clearance of OE to depth. The proposed approach for implementing this alternative will include an incremental clearance of the 312-acre parcel of the site. The clearance will be conducted by establishing 200-foot wide lanes parallel to Woodfill and Tokyo Roads. The clearance will proceed west from Tokyo Road and south from Woodfill Road. If no UXO or OE scrap are found in this initial area, the clearance operation will be considered complete. If, however, UXO or OE scrap are found in a grid, the geophysical survey and subsurface clearance operation will clear the next two 200-foot by 200-foot grid squares in the direction of the clearance operation. This incremental approach will ensure that no UXO or OE scrap remains in the area as would be expected in the case of an impact area.

ES10 In addition to this surface and subsurface UXO and OE scrap clearance activity, five randomly selected 200-foot by 200-foot grids will be geophysically surveyed and cleared of any UXO or OE scrap. These grids will be located in the central portion of the 312-acre wooded area where a geophysical survey had not previously been conducted.